

The Mathematics Assessment

The NAEP mathematics assessment at grade 4 measures students’ ability to solve problems in five mathematics content strands: Number Properties and Operations; Measurement; Geometry; Data Analysis, Statistics, and Probability; and Algebra. Within each of these five content strands, students are asked questions that involve low, moderate, and high mathematical complexity. Mathematical complexity deals with what the students are asked to do in a task.

The mathematics framework for 2009 NAEP mathematics assessment includes multiple-choice questions, short-answer constructed-response questions, and extended constructed-response questions. The extended exercises allow students to communicate their ideas and demonstrate the reasoning they used to solve problems. The short-answer and extended-response questions make up approximately 50 percent of student assessment time. The assessment also incorporates the use of calculators, rulers, and ancillary materials such as spinners and geometric shapes in some parts of the assessment, but not all.

Calculator use is permitted on approximately one-fourth of the test questions (four-function calculators at Grade 4). NAEP provides calculators for all students. For more information regarding the mathematics assessment framework, please visit <http://www.nagb.org>.

NAEP Mathematics Framework
Distribution of Questions Across Content Strands

Number Properties and Operations	40%
Measurement	20%
Geometry	15%
Data Analysis, Statistics, and Probability	10%
Algebra	15%

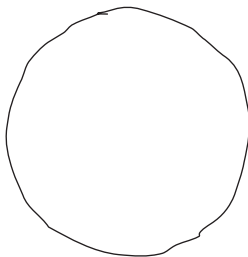
Mathematics Booklet Directions

This assessment uses many different booklets. Each booklet has different questions. Do not worry if the person next to you is working on questions that do not look like those you are working on.

Read each question carefully and answer it as well as you can. Do not spend too much time on any one question.

For some of the questions you may need to write or draw the answer. You can see how this is done in the example below.

Draw a circle in the space below.



You may be given a calculator to use for at least one part of your booklet. If you are given a calculator, you will have to decide when to use it in each section where its use is permitted. For some questions using the calculator is helpful, but for other questions the calculator may not be helpful. After each question you will be asked to indicate whether you used the calculator.

When you receive the calculator, make sure you know how to use it. There are instructions on the back cover of this booklet to help you. If the calculator does not work or if you do not know how to use it, raise your hand and ask for help.

REMEMBER:

Read each question CAREFULLY.

Fill in only ONE OVAL for each question or write your answer in the space provided.

If you change your answer, ERASE your first answer COMPLETELY.

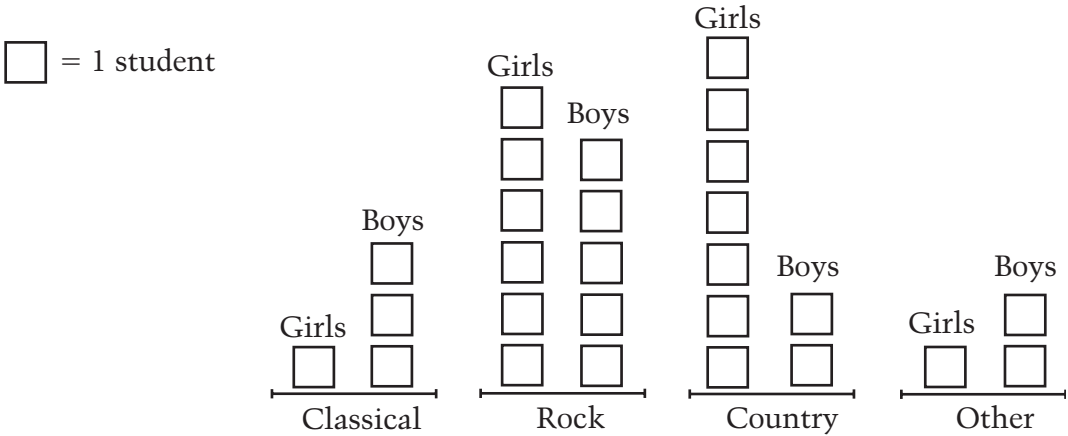
CHECK OVER your work if you finish a section early.

Do not go past the  sign at the end of each section until you are told to do so.



Sample Mathematics Questions
Grade 4

1. Each boy and girl in the class voted for his or her favorite kind of music. Here are the results.

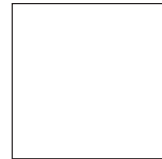
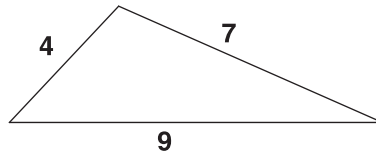


Which kind of music did most students in the class prefer?

- ☐ Ⓐ Classical
- ☒ Ⓑ Rock
- ☐ Ⓒ Country
- ☐ Ⓓ Other

GO ON TO THE NEXT PAGE

2. Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only \$1.00 bills. What is the least number of \$1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?
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3. If both the square and the triangle above have the same perimeter, what is the length of each side of the square?

- ☐ A 4
- ☒ B 5
- ☐ C 6
- ☐ D 7

